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Revision 0

Project Close-Out Report for Waste Area Group 5

September 2005

Idaho Cleanup Project

The Idaho Cleanup Project is operated for the
U.S. Department of Energy by CH2M◆WG Idaho, LLC

ICP/EXT-05-00973
Revision 0
Project No. 23366

Project Close-Out Report for Waste Area Group 5

September 2005

Idaho Cleanup Project
Idaho Falls, Idaho 83415

Prepared for the
U.S. Department of Energy
Assistant Secretary for Environmental Management
Under DOE Idaho Operations Office
Contract DE-AC07-05ID14516

ABSTRACT

This report documents that the review of all Comprehensive Environmental Response, Compensation, and Liability Act requirements for the Waste Area Group 5 sites at the Auxiliary Reactor Area and the Power Burst Facility has been completed and all requirements have been met. This report also provides a guide to documentation prepared to satisfy the requirements.

In addition to applicable requirements and associated documentation, this report includes the activities required to continue into the future and the assignment of responsibilities to the Idaho Cleanup Project and the Idaho National Laboratory.

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ACRONYMS

ARA	Auxiliary Reactor Area
BORAX	Boiling Water Reactor Experiment
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	*Code of Federal Regulations*
D&D	decontamination and dismantlement
DEQ	[Idaho] Department of Environmental Quality
DOE-ID	U.S. Department of Energy Idaho Operations Office
EDMS	Electronic Data Management System
EPA	U.S. Environmental Protection Agency
ESD	explanation of significant difference
FFA/CO	Federal Facility Agreement and Consent Order
FY	fiscal year
IC	institutional control
ICDF	Idaho CERCLA Disposal Facility
ICP	Idaho Cleanup Project
IDAPA	Idaho Administrative Procedures Act
INEEL	Idaho National Engineering and Environmental Laboratory
INEL	Idaho National Engineering Laboratory
INL	Idaho National Laboratory
NA	no action
NFA	no further action
OU	operable unit
PBF	Power Burst Facility
RA	remedial action
RCRA	Resource Conservation and Recovery Act

RD/RA	remedial design/remedial action
RI/FS	remedial investigation/feasibility study
ROD	Record of Decision
SL-1	Stationary Low-Power Reactor No. 1
SPERT	Special Power Excursion Reactor Test
TSF	Technical Support Facility
WAG	waste area group

Project Close-Out Report for Waste Area Group 5

1. INTRODUCTION

This report documents that the review of all Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) requirements for the Waste Area Group (WAG) 5 sites at the Idaho National Laboratory (INL) (Figure 1) has been completed and all requirements have been met. The WAG 5 included CERCLA sites identified at the Auxiliary Reactor Area (ARA) (Figure 2) and Power Burst Facility (PBF) (Figure 3). Many of the facilities formerly comprising the ARA and PBF have been redesignated as part of the Critical Infrastructure Test Range Complex to reflect their new mission within the INL (Figure 4). The review has been conducted as part of the WAG 5 close-out evaluation. This report also provides a guide to documentation prepared to satisfy these requirements. The requirements and supporting documentation were developed in accordance with the *Federal Facility Agreement and Consent Order for the Idaho National Engineering Laboratory* (DOE-ID 1991).

In addition to applicable requirements and associated documentation, this report includes the activities required to continue into the future and the assignment of responsibilities to the Idaho Cleanup Project (ICP) managed by CH2M-WG Idaho, LLC, and the INL currently managed by Battelle Energy Alliance. These activities and responsibilities include groundwater monitoring; operations and maintenance activities, including institutional controls; and related inspections and reporting. This report includes contingency action for continuing 5-year reviews, outstanding actions to be performed, and details regarding how newly identified sites will be investigated and remediated or controlled (as applicable). It also includes a listing of the enforceable milestones and their associated completion dates.

In order to prepare this report, the following activities were performed:

- Reviewed all WAG 5 CERCLA decision documents and operations and maintenance and monitoring plans developed in accordance with the Federal Facility Agreement and Consent Order (FFA/CO) (DOE-ID 1991) and identified applicable requirements. This report includes a list of these requirements and the associated compliance documentation.

- Tracked the decisions made on each WAG 5 site through the FFA/CO-required documents (DOE-ID 1991). This report includes the final decision on each site and the associated end-state document.

- Identified the sites investigated in each type of document (initial assessment, Track 1s, Track 2s, and remedial investigation/feasibility studies [RI/FSs]) and the sites addressed in each of the Records of Decision (RODs). This report includes a summary flow diagram of the sites included in each type of investigative document and ROD.

- Closed out all subcontracts and charge numbers and summarized total project costs.

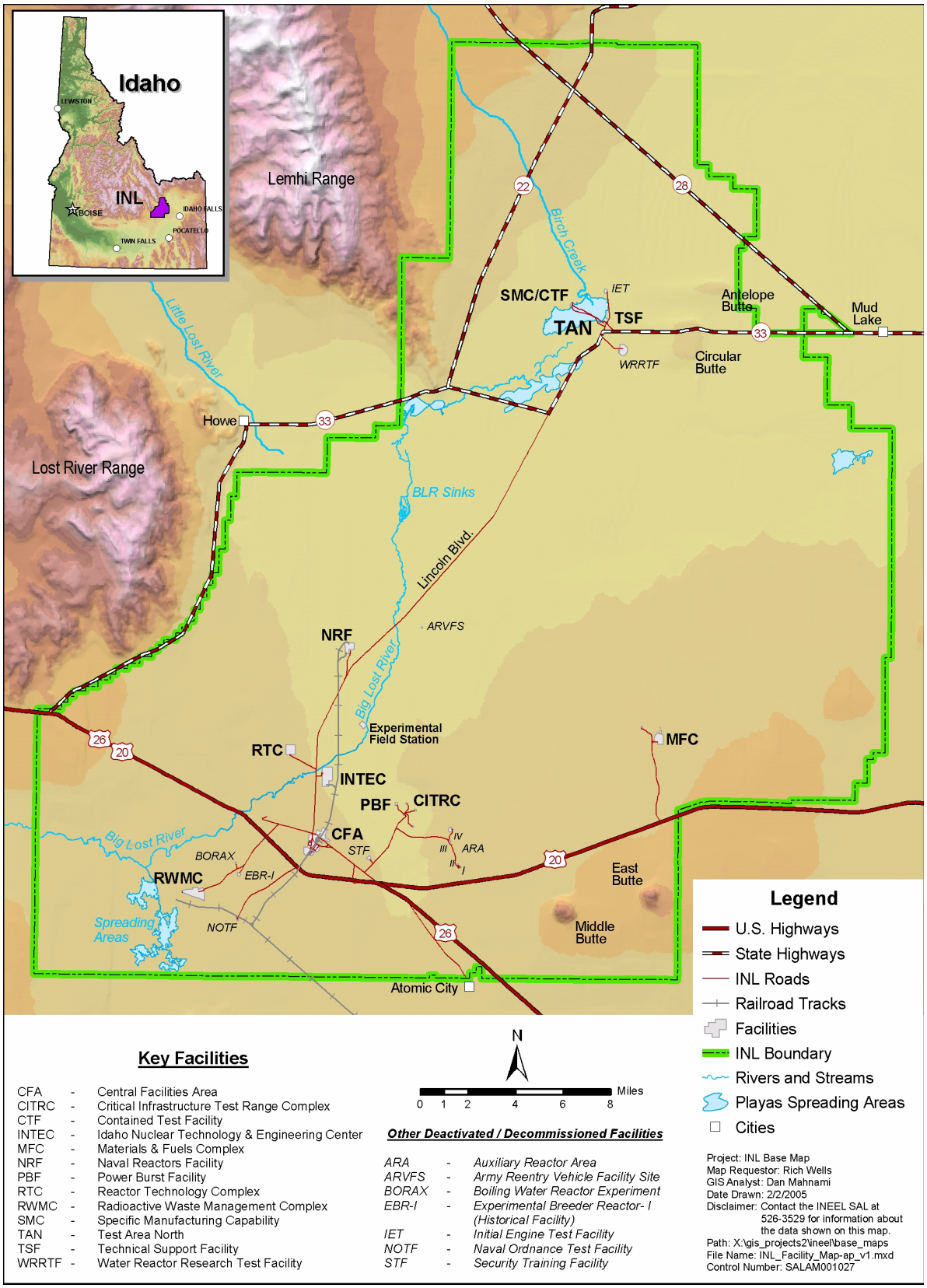
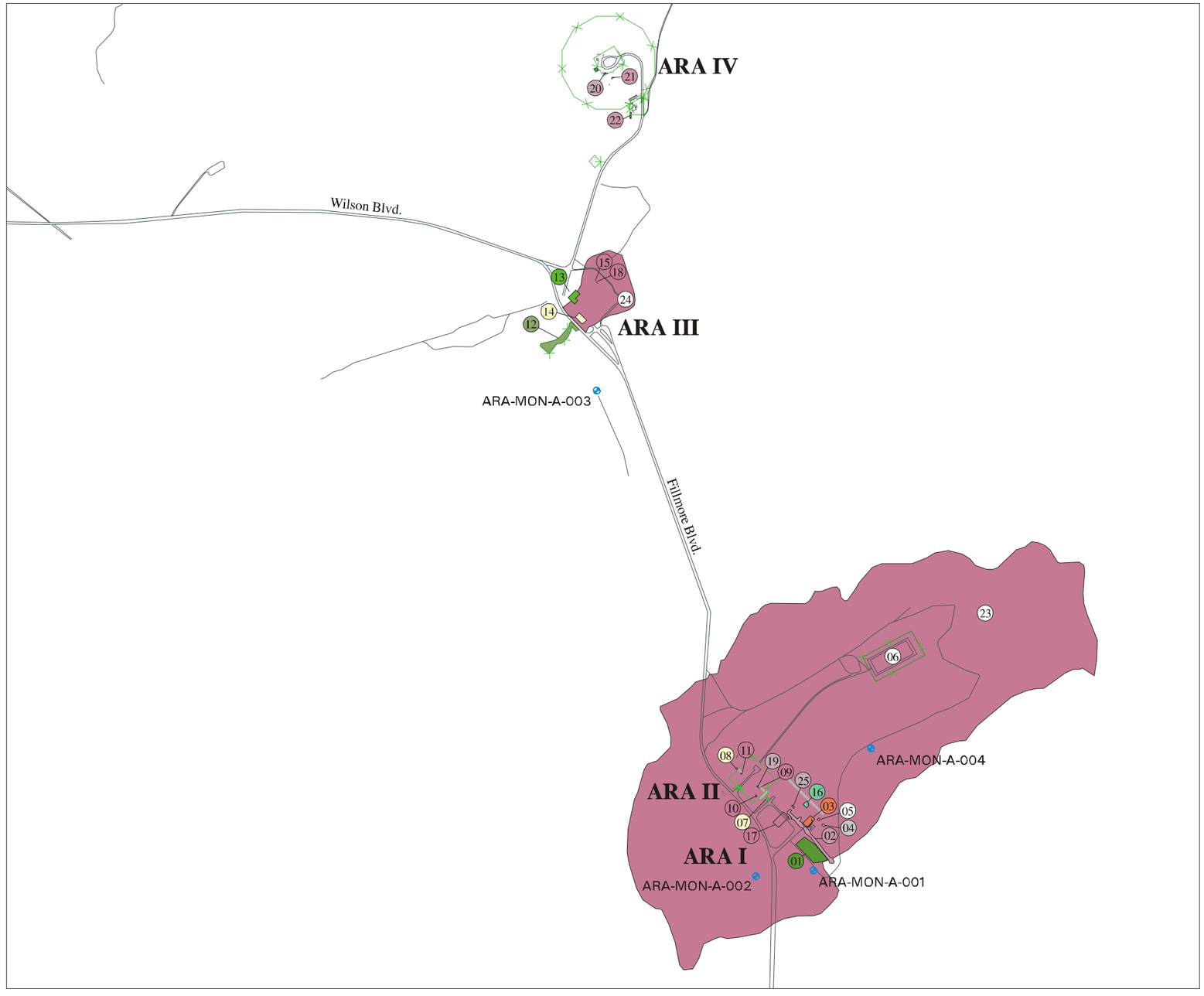


Figure 1. Idaho National Laboratory.

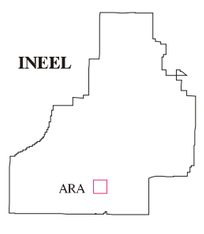


ARA
CERCLA Sites

LEGEND

- Roads and Buildings
- Fences
- Acids
- Acids and Organics
- Acids, Inorganics, and Organics
- Rad
- Organics and Rad
- Inorganics
- Sanitary Waste
- No Known Hazardous Materials
- No Action
- Wells

OPERABLE UNIT	SITE CODE	STATUS	DESCRIPTION
05- 10	ARA- 01	RI/FS	ARA- I Chemical/Evaporation Pond (ARA- 745)]
05- 07	ARA- 02	Track 2	ARA- I Sanitary Waste Leach Field and Seepage Pit (ARA- 746)
05- 07	ARA- 03	Track 2	ARA- I Pad Near ARA- 627 (Lead sheeting)
05- 00	ARA- 04	No Action	ARA- I Sewage Treatment Facility (ARA- 737)
05- 01	ARA- 05	Track 1	ARA- I Evaporation Pond to NE (ARA- 744)
05- 05	ARA- 06	Track 2	ARA- II SL- 1 Burial Ground
05- 00	ARA- 07	No Action	ARA- II Seepage Pit to East (ARA- 720A)
05- 00	ARA- 08	No Action	ARA- II Seepage Pit to West (ARA- 720B)
05- 00	ARA- 09	No Action	ARA- II Septic Tank (ARA- 738)
05- 00	ARA- 10	No Action	ARA- II Septic Tank East (ARA- 613)
05- 00	ARA- 11	No Action	ARA- II Septic Tank West (ARA- 606)
05- 06	ARA- 12	Track 2	ARA- III Radioactive Waste Leach Pond
05- 11	ARA- 13	Track 1	ARA- III Sanitary Sewer Leach Field and Septic Tank (ARA- 740)
05- 00	ARA- 14	No Action	ARA- III Septic Tank and Drainfield (ARA- 739)
05- 01	ARA- 15	Track 1	ARA- III Radionuclide Tank (ARA- 735)
05- 01	ARA- 16	Track 1	ARA- I Radionuclide Tank (ARA- 729)
05- 01	ARA- 17	Track 1	ARA- I Drain (ARA- 626)
05- 01	ARA- 18	Track 1	ARA- III Radionuclide Tank (ARA- 736)
05- 01	ARA- 19	Track 1	ARA- II Detention Tank for Fuel Oil/Radionuclides (ARA- 719)
05- 06	ARA- 20	Track 2	ARA- IV Test Area Contaminated Leach Pit No. 1
05- 00	ARA- 21	No Action	ARA- IV Test Area Septic Tank and Leach Pit No. 2
05- 00	ARA- 22	No Action	ARA- IV Control Area Septic Tank and Leach Pit No. 3 (ARA- 617)
05- 00	ARA- 22	No Action	ARA- IV Control Area Septic Tank and Leach Pit No. 3 (ARA- 617)
05- 12	ARA- 23	Track 1- NSI	ARA Radiologically Contaminated Soil
05- 12	ARA- 24	Track 1- NSI	ARA- III Windblown Contamination Area
05- 12	ARA- 25	RI/FS- NSI	ARA- I Soils Beneath the ARA- 626 Hot Cells

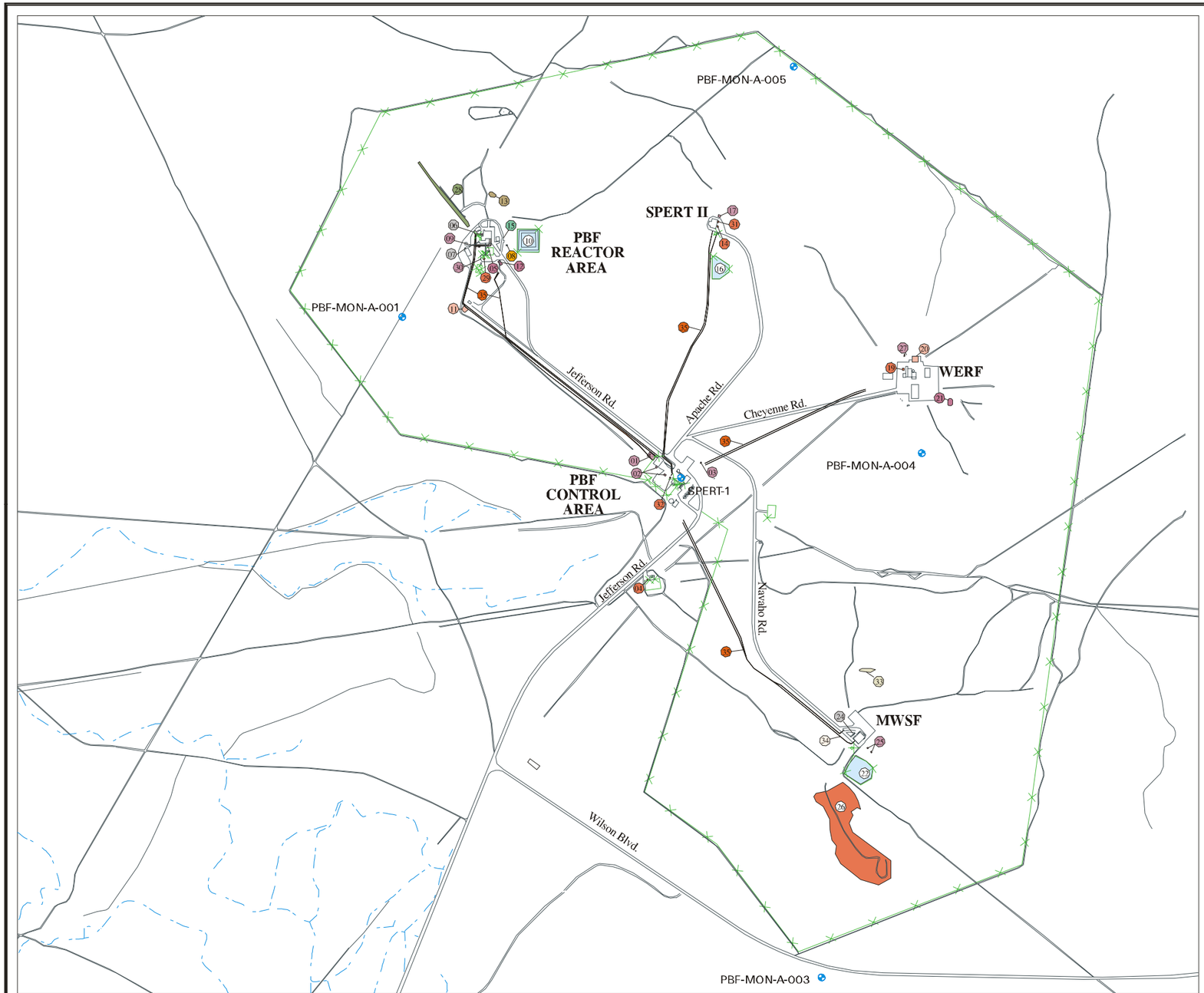


N

0 500 1000 1500 2000 Feet

Project: WAG 5 CERCLA Sites
Developed for: Rich Wells
GIS Analyst: Dan Mahnami
Date Drawn: April 30, 2003
Disclaimer: Contact the INEEL SAL for information about the data shown on this map at 526-3529.
Path: gis_projects/ara/cercla_sites/
File Name: ara_cercla_2003-bl_v1.aml
Document Number: SAL00004685

Figure 2. Auxiliary Reactor Area.

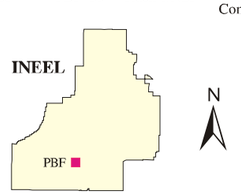


PBF
CERCLA Sites

LEGEND

- Roads and Buildings
- Fences
- Ditches
- Acids
- Acids and Bases
- Acids, Bases, and Inorganics
- Rad
- Fuel Oil and Rad.
- Metals and Rad
- Inorganics
- Inorganics, Organics, and Rad
- No Known Hazardous Materials
- PCBs
- Debris
- Construction Debris
- Construction, Inorganics
- No Action
- Wells

OPERABLE UNIT	SITE CODE	STATUS	DESCRIPTION
05- 00	PBF- 01	No Action	PBF Control Area Septic Tank (PBF- 724), Seepage Pit (PBF- 735)
05- 00	PBF- 02	No Action	PBF Control Area Septic Tanks (PBF- 738,739), Seepage Pit (PBF- 736)
05- 00	PBF- 03	No Action	PBF Control Area Septic Tank for PBF- 632 and Seepage Pits (PBF- 745,748)
05- 04	PBF- 04	Track 1	PBF Control Area Oil Tank at PBF- 608 (substation) outside PBF fence
05- 08	PBF- 05	Track 2	PBF Reactor Area Warm Waste Injection Well (PBF- 301)
05- 03	PBF- 06	Track 1	PBF Reactor Area Blowdown Pit for Reactor Boiler by PBF- 621
05- 03	PBF- 07	Track 1	PBF Reactor Area Oil Drum Storage (PER- T13)
05- 13	PBF- 08	Interim Action	PBF Reactor Area Corrosive Waste Disposal Sump Brine Tank (PBF- 731)
05- 00	PBF- 09	No Action	PBF Reactor Area Septic Tank and Drainfield (PBF 728)
05- 13	PBF- 10	Interim Action	PBF Reactor Area Evaporation Pond (PBF- 733)
05- 08	PBF- 11	Track 2	PBF SPERT I Seepage Pit (PBF- 750)
05- 02	PBF- 12	Track 1	PBF SPERT I Leach Pond
05- 03	PBF- 13	Track 1	PBF Reactor Area Rubble Pit
05- 04	PBF- 14	Track 1	PBF SPERT II Inactive Fuel Oil Tank (front of PBF- 612)
05- 08	PBF- 15	Track 2	PBF Reactor Area Corrosive Waste Injection Well (PBF- 302)
05- 09	PBF- 16	Track 2	PBF SPERT II Leach Pond
05- 00	PBF- 17	No Action	PBF SPERT II Septic Tank and Seepage Pit (PBF 725)
05- 04	PBF- 19	Track 1	PBF SPERT III Inactive Fuel Oil Tank at PBF- 609 (west side of WERF)
05- 09	PBF- 20	Track 2	PBF SPERT III Small Leach Pond
05- 02	PBF- 21	Track 1	PBF SPERT III Large Leach Pond
05- 09	PBF- 22	Track 2	PBF SPERT IV Leach Pond (PBF- 758)
05- 03	PBF- 24	Track 1	PBF SPERT IV Blowdown Pit (adjacent to PBF- 716)
05- 00	PBF- 25	No Action	PBF SPERT IV Septic Tank and Leach Pit (PBF 727 and 757)
05- 02	PBF- 26	Track 1	PBF SPERT IV SPERT Lake (adjacent to PBF- 758)
05- 00	PBF- 27	No Action	PBF SPERT III Septic Tank (PBF- 726) and Seepage Pit
05- 03	PBF- 28	Track 1	PBF Cooling Tower Area and Drainage Ditch
05- 12	PBF- 29	Track 1- NSI	PBF Reactor Area Abandoned Fuel Oil Tank
05- 12	PBF- 30	Track 1- NSI	PBF Reactor Area Abandoned Septic System
05- 12	PBF- 31	Track 1- NSI	SPERT II Fuel Oil Tank
05- 12	PBF- 32	Track 1- NSI	PBF Control Area Fuel Oil Tank
10- 08	PBF- 33	Track 1	Abandoned Debris Trench
10- 08	PBF- 34	Track 1	Abandoned Debris Located Near the MWSF
10- 08	PBF- 35	Track 1/NSI	Abandoned Power & Control Cables between buildings at the PBF Complex (PBF Reactor Area Control Cables)



0 500 1000 1500 2000 Feet

Project: WAG 5 CERCLA Sites
Developed for: Rich Wells
GIS Analyst: Dan Mahnami
Date Drawn: March 28, 2005
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Path: ' '
File Name: pbf_cercla_2003-bl_v1.aml
Document Number: SAL00001138

Figure 3. Power Burst Facility.

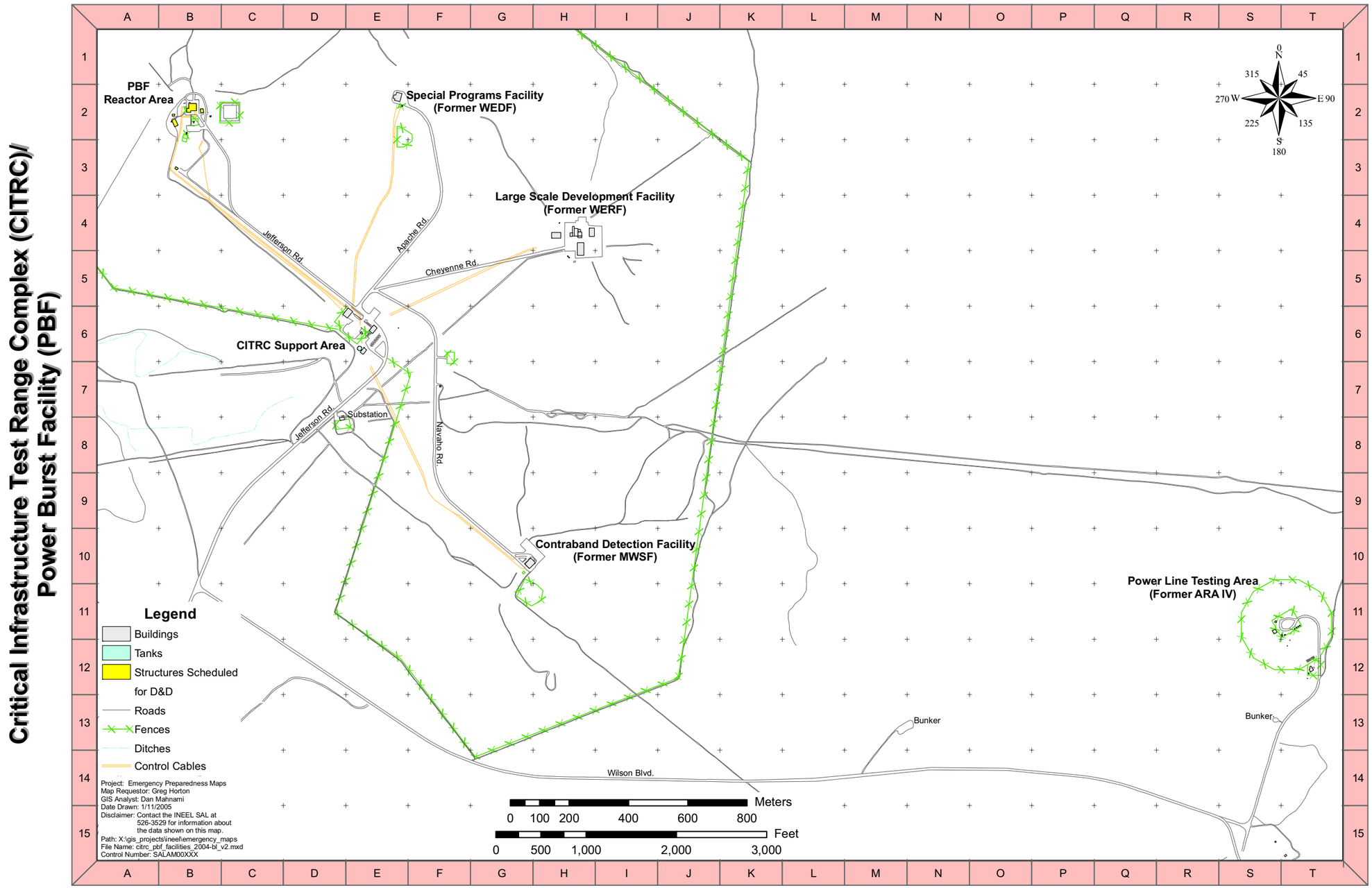

Figure 4. Critical Infrastructure Test Range Complex.

2. REQUIREMENTS

The review and evaluation process included the compilation of all documents prepared in support of the WAG 5 sites. These documents included Track 1 and Track 2 evaluations, risk assessments, RI/FSs, RODS, explanations of significant differences (ESDs), remedial design/remedial action (RD/RA) work plans, remedial action reports, groundwater monitoring plans and reports, operations and maintenance plans and reports, and institutional control plans and reports. Table 1 presents the results of the review of these documents and the requirements included therein related to the WAG 5 sites.

Four RODs have been prepared for remediation activities within WAG 5. The first ROD (issued in September 1992) focused on remediation of the PBF corrosive waste sump (PBF-08) and evaporation pond (PBF-10) within Operable Unit (OU) 5-13 as part of an interim remedial action (DOE-ID 1992a). The second ROD (issued in December 1992) focused on the no action declaration for the ARA-I chemical evaporation pond (ARA-01) (DOE-ID 1992b). The third ROD under OU 5-07 (issued in January 1996) focused on remediation of the Stationary Low-Power Reactor No. 1 (SL-1) burial ground (ARA-06), along with the identification of 10 no action sites within OUs 5-01, 5-03, 5-04, and 5-11 (and an additional burial ground within WAG 6, OU 6-01, which is not summarized herein) (INEL 1996). Although no additional effort was expended to remediate or assess these no action sites individually, each was considered for cumulative effects in the comprehensive RI/FS for WAG 5. The fourth ROD, also known as the comprehensive ROD for WAG 5 (OU 5-12), was issued in January 2000 and describes the proposed remedial action for all other sites within WAG 5 that are not covered by the previous RODs (DOE-ID 2000a).

An extensive search of all documents contained in the Environmental Restoration project files in the Electronic Document Management System (EDMS) was completed to identify all sites under WAG 5. Subsequently, a progressive search of available documents pertaining to each site was completed, and those documents were reviewed to ensure that each site had reached its end state. The results of the review relating to site-specific requirements and end-state determinations are presented in Table 2 and are grouped by OU. Table 3 provides a crosswalk of site codes to OUs.

Table 1. Requirements compliance matrix.

Requirements Document	Requirement/Commitment	Implementation Document	Status
Record of Decision Auxiliary Reactor Area-I Chemical Evaporation Pond, Operable Unit 5-10 (DOE-ID 1992b)	No further remedial action is required.	None	No action is required.
Power Burst Facility Record of Decision: Power Burst Facility Corrosive Waste Sump and Evaporation Pond, Operable Unit 5-13, Waste Area Group 5 (DOE-ID 1992a)	Remediate the PBF evaporation pond and remove the contaminated sludge and sediment from the corrosive waste sump and dispose of appropriately.	*Final Remedial Design/ Implementing Remedial Action Work Plan Power Burst Facility (PBF) -08 Corrosive Waste Sump and PBF-10 Evaporation Pond Remediation, Operable Unit (OU) 5-13* (INEL 1993)	Completed *Final Remedial Action Report Power Burst Facility (PBF) -08 Corrosive Waste Sump and PBF-10 Evaporation Pond Interim Action, Operable Unit 5-13* (Parsons 1995)
Explanation of Significant Difference Power Burst Facility Corrosive Waste Sump and Evaporation Pond Record of Decision at the Idaho National Engineering Laboratory (DOE-ID 1994a)	Revised handling and disposition of pond sediments	*Final Remedial Design/ Implementing Remedial Action Work Plan Power Burst Facility (PBF) -08 Corrosive Waste Sump and PBF-10 Evaporation Pond Remediation, Operable Unit (OU) 5-13* (INEL 1993)	Completed *Final Remedial Action Report Power Burst Facility (PBF) -08 Corrosive Waste Sump and PBF-10 Evaporation Pond Interim Action, Operable Unit 5-13* (Parsons 1995)
Explanation of Significant Difference Power Burst Facility Corrosive Waste Sump and Evaporation Pond Record of Decision at the Idaho National Engineering Laboratory (DOE-ID 1994b)	Revised handling and disposition of sump sludge	*Final Remedial Design/ Implementing Remedial Action Work Plan Power Burst Facility (PBF) -08 Corrosive Waste Sump and PBF-10 Evaporation Pond Remediation, Operable Unit (OU) 5-13* (INEL 1993)	Completed *Final Remedial Action Report Power Burst Facility (PBF) -08 Corrosive Waste Sump and PBF-10 Evaporation Pond Interim Action, Operable Unit 5-13* (Parsons 1995)
Record of Decision Stationary Low-Power Reactor-1 and Boiling Water Reactor Experiment-I Burial Grounds (Operable Units 5-05 and 6-01), and 10 No Action Sites (Operable Units 5-01, 5-03, 5-04, and 5-11) (INEL 1996)	Cap the SL-1 burial ground with an engineered barrier.	*Stationary Low-Power Reactor-1 and Boiling Water Reactor Experiment-I Burial Grounds Engineered Barriers Project Remedial Design/Remedial Action Work Plan, Operable Unit 5-05/ 6-01* (DOE-ID 1996)	Completed *Remedial Action Report OU 5-05 Stationary Low-Power Reactor No. 1 and OU 6-01 Boiling Water Reactor Experiment-I Burial Grounds Engineered Barriers* (DOE-ID 1997)

Table 1. (continued).

Requirements Document	Requirement/Commitment	Implementation Document	Status
	Perform annual inspections and radiological surveys of the engineered cap to ensure the effectiveness of the remedy.	*Stationary Low-Power Reactor-1 and Boiling Water Reactor Experiment-I Burial Grounds Engineered Barriers Project Operation and Maintenance Plan, Operable Units 5-05 and 6-01* (INEL 1997) *INEEL Sitewide Operations and Maintenance Plan for CERCLA Response Actions* (DOE-ID 2004a)	Ongoing *OU 5-05/OU 6-01 SL-1/BORAX 1998 Annual Inspection Summary* (INEEL 1998) *1999 Annual Inspection Summary for Stationary Low-Power Reactor-1 and Boiling Water Reactor Experiment-I Burial Grounds, Operable Units 5-05 and 6-01* (INEEL 1999) *2000 Annual Inspection Summary for Stationary Low-Power Reactor-1 and Boiling Water Reactor Experiment-I Burial Grounds* (INEEL 2001a) *2001 Annual Inspection Summary for Stationary Low-Power Reactor-1 and Boiling Water Reactor Experiment-I Burial Grounds* (INEEL 2001b) *2002 Annual Inspection Summary for Stationary Low-Power Reactor-1 and Boiling Water Reactor Experiment-I Burial Grounds, Operable Units 5-05 and 6-01* (INEEL 2002a) *2003 Annual Inspection Summary for the Stationary Low-Power Reactor-1 Burial Ground, Operable Unit 5-05* (INEEL 2003a) "INL Sitewide Operations and Maintenance Report for CERCLA Response Actions—FY 2004 (Draft)"[a]
Record of Decision Power Burst Facility and Auxiliary Reactor Area, Operable Unit 5-12 (DOE-ID 2000a)	Remediate the ARA-02 sanitary waste system.	*Waste Area Group 5 Remedial Design/Remedial Action Work Plan, Phase I* (DOE-ID 2001)	Completed *Remedial Action Report for the Operable Unit 5-12 Remedial Action* (DOE-ID 2005a)

Table 1. (continued).

Requirements Document	Requirement/Commitment	Implementation Document	Status
	Remediate the ARA-16 radionuclide tank site.	*Waste Area Group 5 Remedial Design/Remedial Action Work Plan, Phase I* (DOE-ID 2001)	Completed *Remedial Action Report for the Operable Unit 5-12 Remedial Action* (DOE-ID 2005a)
	Remediate the ARA-01, ARA-12, ARA-23, ARA-25, and PBF-16 contaminated soil sites.	*Remedial Design/Remedial Action Work Plan, Phase II, for Waste Area Group 5* (DOE-ID 2003a)	Completed *Remedial Action Report for the Operable Unit 5-12 Remedial Action* (DOE-ID 2005a)
	Implement and maintain institutional controls at WAG 5 sites.	*Operations and Maintenance Plan for Power Burst Facility and Auxiliary Reactor Area, Operable Unit 5-12* (DOE-ID 2000b) *INEEL Sitewide Institutional Controls Plan* (DOE-ID 2004b) *INEEL Sitewide Operations and Maintenance Plan for CERCLA Response Actions* (DOE-ID 2004a)	Ongoing *Institutional Controls Status Report for the Power Burst Facility and Auxiliary Reactor Area, Operable Unit 5-12* (DOE-ID 2000c) *Institutional Controls Status Report for the Power Burst Facility and Auxiliary Reactor Area, Operable Unit 5-12, for the Year 2001* (DOE-ID 2002a) *Institutional Controls Status Report for the Power Burst Facility and Auxiliary Reactor Area, Operable Unit 5-12, for the Year 2002* (DOE-ID 2002b) *Institutional Controls Status Report for the Power Burst Facility and Auxiliary Reactor Area, Operable Unit 5-12, for Fiscal Year 2003* (DOE-ID 2003b) *INEEL Sitewide Institutional Controls Annual Report—FY 2004* (DOE-ID 2004c)
	Disposition of stored and investigation-derived waste	*Remedial Design/Remedial Action Work Plan, Phase II, for Waste Area Group 5* (DOE-ID 2003a)	Ongoing *Remedial Action Report for the Operable Unit 5-12 Remedial Action* (DOE-ID 2005a)

Table 1. (continued).

Requirements Document	Requirement/Commitment	Implementation Document	Status
	Implement groundwater monitoring.	*Groundwater Monitoring Plan for the Waste Area Group 5 Remedial Action* (DOE-ID 2004d)	Ongoing *FY 2001 Annual Groundwater Monitoring Trending Report for the Waste Area Group 5* (INEEL 2001c) *Annual Groundwater Monitoring Status Report for the Waste Area Group 5 for Fiscal Year 2002* (INEEL 2002b) *Annual Groundwater Monitoring Status Report for the Waste Area Group 5 for Fiscal Year 2003* (INEEL 2003b) *Annual Groundwater Monitoring Status Report for the Waste Area Group 5 for Fiscal Year 2004* (ICP 2004) *Annual Groundwater Monitoring Status Report for Waste Area Group 5 for Fiscal Year 2005* (ICP 2005)
Explanation of Significant Differences for the Record of Decision for the Power Burst Facility and Auxiliary Reactor Area Operable Unit 5-12 (DOE-ID 2005b)	Treat ARA-16 waste using the system fabricated for the V-Tanks system.	*Group 2 Remedial Design/ Remedial Action Work Plan Addendum 2 for the TSF-09/18 V-Tanks and Contents Removal, Phase 1 Contents Treatment, and Site Remediation at Test Area North, Waste Area Group 1, Operable Unit 1-10* (DOE-ID 2004e)	In process

Table 1. (continued).

Requirements Document	Requirement/Commitment	Implementation Document	Status
"Schedule and Criteria for Petroleum Release from PBF Heating Oil Tank PER-722 Reported in 2002" (Frederick 2004)	Provide quarterly monitoring of groundwater underlying the PER-722 tank for a period of 3 years to ensure that the diesel fuel release did not adversely impact the Snake River Plain Aquifer.	*Groundwater Monitoring Plan for the PER-722 Underground Storage Tank Diesel Fuel Release* (DOE-ID 2004f)	In process "Transmittal of the Quarterly Data for PER-722 Diesel Release Monitoring for June 2004" (Hodel 2004a) "Transmittal of the Quarterly Data for PER-722 Diesel Release Monitoring for September 2004" (Hodel 2004b) "Transmittal of the Quarterly Data for PER-722 Diesel Release Monitoring for December 2004" (Hodel 2005a) "Transmittal of the Quarterly Data for PER-722 Diesel Release Monitoring for April 2005" (Hodel 2005b) "Transmittal of the Quarterly Data for PER-722 Diesel Release Monitoring for June 2005" (Butler 2005)

a. DOE-ID, 2005a, "INL Sitewide Operations and Maintenance Report for CERCLA Response Actions—FY 2004 (Draft)," DOE/NE-ID-11200, Rev. 0, Draft, U.S. Department of Energy Idaho Operations Office, August 2005.
b. DOE-ID, 2005b, "Five-Year Review of CERCLA Response Actions at the Idaho National Laboratory (Draft)," DOE/NE-ID-11201, Rev. 0, Draft, U.S. Department of Energy Idaho Operations Office, June 2005.

ARA = Auxiliary Reactor Area
CERCLA = Comprehensive Environmental Response, Compensation, and Liability Act
DOE-ID = U.S. Department of Energy Idaho Operations Office
FY = fiscal year
ICP = Idaho Cleanup Project
INEEL = Idaho National Engineering and Environmental Laboratory
INEL = Idaho National Engineering Laboratory
INL = Idaho National Laboratory
OU = operable unit
PBF = Power Burst Facility
SL-1 = Stationary Low-Power Reactor No. 1
TSF = Technical Support Facility
WAG = waste area group

Table 2. Site determination matrix.

OU	Site Code	Site Description	Determination				End State Document	Comments
			NA	NFA	RA	IC		
None	ARA-04	ARA-I Sewage Treatment Facility (ARA-737)	X	—	—	—	*Record of Decision Power Burst Facility and Auxiliary Reactor Area, Operable Unit 5-12* (DOE-ID 2000a)	Environmental Restoration removed the structure during the OU 5-12 remedial action.
	ARA-07	ARA-II seepage pit to the east (ARA-720A)	—	X	—	X	*Record of Decision Power Burst Facility and Auxiliary Reactor Area, Operable Unit 5-12* (DOE-ID 2000a) *Remedial Action Report for the Operable Unit 5-12 Remedial Action* (DOE-ID 2005a)	The original determination in the ROD (DOE-ID 2000a) was no action. Re-evaluation during closure of the site resulted in the NFA determination.
	ARA-08	ARA-II seepage pit to the west (ARA-720B)	—	X	—	X	*Record of Decision Power Burst Facility and Auxiliary Reactor Area, Operable Unit 5-12* (DOE-ID 2000a) *Remedial Action Report for the Operable Unit 5-12 Remedial Action* (DOE-ID 2005a)	The original determination in the ROD (DOE-ID 2000a) was no action. Re-evaluation during closure of the site resulted in the NFA determination.
	ARA-09	ARA-II septic tank (ARA-738)	X	—	—	—	*Record of Decision Power Burst Facility and Auxiliary Reactor Area, Operable Unit 5-12* (DOE-ID 2000a)	The tank was removed by D&D.
	ARA-10	ARA-II septic tank east (ARA-613)	X	—	—	—	*Record of Decision Power Burst Facility and Auxiliary Reactor Area, Operable Unit 5-12* (DOE-ID 2000a)	The tank was removed by D&D.
	ARA-11	ARA-II septic tank west (ARA-606)	X	—	—	—	*Record of Decision Power Burst Facility and Auxiliary Reactor Area, Operable Unit 5-12* (DOE-ID 2000a)	The tank was removed by D&D.

Table 2. (continued).

OU	Site Code	Site Description	Determination				End State Document	Comments
			NA	NFA	RA	IC		
	ARA-14	ARA-III septic tank and drainfield (ARA-739)	X	—	—	—	*Record of Decision Power Burst Facility and Auxiliary Reactor Area, Operable Unit 5-12* (DOE-ID 2000a)	The tank was removed by D&D.
	ARA-21	ARA-IV test area septic tank and Leach Pit No. 2	X	—	—	—	*Record of Decision Power Burst Facility and Auxiliary Reactor Area, Operable Unit 5-12* (DOE-ID 2000a) *Remedial Action Report for the Operable Unit 5-12 Remedial Action* (DOE-ID 2005a)	The waste contained in the septic tank was removed during the WAG 5 remedial action as a best management practice. The tank and pit were abandoned in accordance with IDAPA regulations.
	ARA-22	ARA-IV control area septic tank and Leach Pit No. 3 (ARA-617)	X	—	—	—	*Record of Decision Power Burst Facility and Auxiliary Reactor Area, Operable Unit 5-12* (DOE-ID 2000a)	The system is still in use.
	PBF-01	PBF control area septic tank (PBF-724) and seepage pit (PBF-735)	X	—	—	—	*Record of Decision Power Burst Facility and Auxiliary Reactor Area, Operable Unit 5-12* (DOE-ID 2000a)	The system is still in use.
	PBF-02	PBF control area septic tanks (PBF-728 and PBF-739) and seepage pit (PBF-736)	X	—	—	—	*Record of Decision Power Burst Facility and Auxiliary Reactor Area, Operable Unit 5-12* (DOE-ID 2000a)	The system was removed from service.
	PBF-03	PBF control area septic tank for PBF-632 and seepage pits (PBF-745 and PBF-748)	X	—	—	—	*Record of Decision Power Burst Facility and Auxiliary Reactor Area, Operable Unit 5-12* (DOE-ID 2000a)	The system is still in use.

Table 2. (continued).

OU	Site Code	Site Description	Determination				End State Document	Comments
			NA	NFA	RA	IC		
	PBF-09	PBF reactor area septic tank and drainfield (PBF-728)	X	—	—	—	*Record of Decision Power Burst Facility and Auxiliary Reactor Area, Operable Unit 5-12* (DOE-ID 2000a)	The system was removed from service.
	PBF-17	PBF SPERT-II septic tank and seepage pit (PBF-725)	X	—	—	—	*Record of Decision Power Burst Facility and Auxiliary Reactor Area, Operable Unit 5-12* (DOE-ID 2000a)	The system is still in use.
	PBF-25	PBF SPERT-IV septic tank and leach pit (PBF-727 and PBF-757)	X	—	—	—	*Record of Decision Power Burst Facility and Auxiliary Reactor Area, Operable Unit 5-12* (DOE-ID 2000a)	The system is still in use.
	PBF-27	PBF SPERT-III septic tank (PBF-726) and seepage pit	X	—	—	—	*Record of Decision Power Burst Facility and Auxiliary Reactor Area, Operable Unit 5-12* (DOE-ID 2000a)	The system was removed from service.
5-01	ARA-05	ARA-I evaporation pond to the northeast (ARA-744)	X	—	—	—	*Record of Decision Power Burst Facility and Auxiliary Reactor Area, Operable Unit 5-12* (DOE-ID 2000a)	—
	ARA-15	ARA-III radionuclide tank (ARA-735)	X	—	—	—	*Record of Decision Power Burst Facility and Auxiliary Reactor Area, Operable Unit 5-12* (DOE-ID 2000a)	The system was removed from service.
	ARA-16	ARA-I radionuclide tank	—	—	X	—	*Record of Decision Power Burst Facility and Auxiliary Reactor Area, Operable Unit 5-12* (DOE-ID 2000a) *Remedial Action Report for the Operable Unit 5-12 Remedial Action* (DOE-ID 2005a)	The tank contents await treatment in the V-Tanks treatment system. The tank, vault, and contaminated soil were removed during the remedial action.

Table 2. (continued).

OU	Site Code	Site Description	Determination				End State Document	Comments
			NA	NFA	RA	IC		
	ARA-17	ARA-I drain (ARA-626)	X	—	—	—	*Record of Decision Power Burst Facility and Auxiliary Reactor Area, Operable Unit 5-12* (DOE-ID 2000a)	All drains were removed during the WAG 5 Phase I remedial action.
	ARA-18	ARA-III radionuclide tank (ARA-736)	X	—	—	—	*Record of Decision Power Burst Facility and Auxiliary Reactor Area, Operable Unit 5-12* (DOE-ID 2000a)	The system was removed from service.
	ARA-19	ARA-II detention tank for fuel oil/ radionuclides (ARA-719)	X	—	—	—	*Record of Decision Power Burst Facility and Auxiliary Reactor Area, Operable Unit 5-12* (DOE-ID 2000a)	The system was removed from service.
5-02	PBF-12	PBF SPERT-I leach pond	—	X	—	X	*Record of Decision Power Burst Facility and Auxiliary Reactor Area, Operable Unit 5-12* (DOE-ID 2000a)	Institutional controls are required due to the presence of Cs-137.
	PBF-21	PBF SPERT-III large leach pond	—	X	—	X	*Record of Decision Power Burst Facility and Auxiliary Reactor Area, Operable Unit 5-12* (DOE-ID 2000a)	Institutional controls are required due to the presence of Cs-137.
	PBF-26	PBF SPERT-IV lake	—	X	—	X	*Record of Decision Power Burst Facility and Auxiliary Reactor Area, Operable Unit 5-12* (DOE-ID 2000a) "Five-Year Review of CERCLA Response Actions at the Idaho National Laboratory (Draft)"[a]	Institutional controls are required due to the presence of Cs-137. The 5-year review recommended discontinuation of the ICs pending Agency approval.

Table 2. (continued).

OU	Site Code	Site Description	Determination				End State Document	Comments
			NA	NFA	RA	IC		
5-03	PBF-06	PBF reactor area blowdown pit for the reactor boiler by PBF-621	X	—	—	—	*Record of Decision Power Burst Facility and Auxiliary Reactor Area, Operable Unit 5-12* (DOE-ID 2000a)	—
	PBF-07	PBF reactor area oil drum storage (PER-T13)	X	—	—	—	*Record of Decision Power Burst Facility and Auxiliary Reactor Area, Operable Unit 5-12* (DOE-ID 2000a)	The storage pad was removed during D&D activities.
	PBF-13	PBF reactor area rubble pit	—	X	—	X	*Record of Decision Power Burst Facility and Auxiliary Reactor Area, Operable Unit 5-12* (DOE-ID 2000a)	Institutional controls are required due to the presence of asbestos.
	PBF-24	PBF SPERT-IV blowdown pit (adjacent to PBF-716)	X	—	—	—	*Record of Decision Power Burst Facility and Auxiliary Reactor Area, Operable Unit 5-12* (DOE-ID 2000a)	—
	PBF-28	PBF reactor area cooling tower area and drainage ditch	X	—	—	—	*Record of Decision Power Burst Facility and Auxiliary Reactor Area, Operable Unit 5-12* (DOE-ID 2000a)	The cooling tower has been removed.
5-04	PBF-04	PBF control area oil tank at PBF-608 (substation) outside of the PBF fence	X	—	—	—	*Record of Decision Power Burst Facility and Auxiliary Reactor Area, Operable Unit 5-12* (DOE-ID 2000a)	The tank has been removed.
	PBF-14	PBF SPERT-II inactive fuel oil tank (front of PBF-612)	X	—	—	—	*Record of Decision Power Burst Facility and Auxiliary Reactor Area, Operable Unit 5-12* (DOE-ID 2000a)	The tank was abandoned in place.

Table 2. (continued).

OU	Site Code	Site Description	Determination				End State Document	Comments
			NA	NFA	RA	IC		
	PBF-19	PBF SPERT-III inactive fuel oil tank (west side of the Waste Experimental Reduction Facility)	X	—	—	—	*Record of Decision Power Burst Facility and Auxiliary Reactor Area, Operable Unit 5-12* (DOE-ID 2000a)	The tank was possibly removed, but it cannot be confirmed.
5-05	ARA-06	ARA-II SL-1 burial ground	—	—	X	X	*Record of Decision Stationary Low-Power Reactor-1 and Boiling Water Reactor Experiment-I Burial Grounds (Operable Units 5-05 and 6-01), and 10 No Action Sites (Operable Units 5-01, 5-03, 5-04, and 5-11)* (INEL 1996) *Remedial Action Report OU 5-05 Stationary Low-Power Reactor No. 1 and OU 6-01 Boiling Water Reactor Experiment-I Burial Grounds Engineered Barriers* (DOE-ID 1997)	Institutional controls are required due to the presence of various radionuclides. The institutional controls will remain in effect for up to 400 years.
5-06	ARA-12	ARA-III radioactive waste leach pond	—	—	X	—	*Record of Decision Power Burst Facility and Auxiliary Reactor Area, Operable Unit 5-12* (DOE-ID 2000a) *Remedial Action Report for the Operable Unit 5-12 Remedial Action* (DOE-ID 2005a)	The remedial action removed contamination to acceptable levels for free release.
	ARA-20	ARA-IV test area contaminated Leach Pit No. 1	X	—	—	—	*Record of Decision Power Burst Facility and Auxiliary Reactor Area, Operable Unit 5-12* (DOE-ID 2000a)	The pit structure, with the exception of a ring at a depth of 18 ft, was removed.

Table 2. (continued).

OU	Site Code	Site Description	Determination				End State Document	Comments
			NA	NFA	RA	IC		
5-07	ARA-02	ARA-I sanitary waste system	—	—	X	—	*Record of Decision Power Burst Facility and Auxiliary Reactor Area, Operable Unit 5-12* (DOE-ID 2000a) *Remedial Action Report for the Operable Unit 5-12 Remedial Action* (DOE-ID 2005a)	The remedial action removed contamination to acceptable levels for free release.
	ARA-03	ARA-I lead sheeting pad near ARA-627	—	X	—	X	*Record of Decision Power Burst Facility and Auxiliary Reactor Area, Operable Unit 5-12* (DOE-ID 2000a) "Five-Year Review of CERCLA Response Actions at the Idaho National Laboratory (Draft)"[a]	Institutional controls are required due to the presence of Cs-137. The 5-year review recommended discontinuation of the ICs pending Agency approval.
5-08	PBF-05	PBF reactor area warm waste injection well (PBF-301)	X	—	—	—	*Record of Decision Power Burst Facility and Auxiliary Reactor Area, Operable Unit 5-12* (DOE-ID 2000a)	The well was abandoned in place.
	PBF-11	PBF SPERT-I seepage pit (PBF-750)	X	—	—	—	*Record of Decision Power Burst Facility and Auxiliary Reactor Area, Operable Unit 5-12* (DOE-ID 2000a)	—
	PBF-15	PBF reactor area corrosive waste injection well (PBF-302)	X	—	—	—	*Record of Decision Power Burst Facility and Auxiliary Reactor Area, Operable Unit 5-12* (DOE-ID 2000a)	The well was abandoned in place.

Table 2. (continued).

OU	Site Code	Site Description	Determination				End State Document	Comments
			NA	NFA	RA	IC		
5-09	PBF-16	SPERT-II leach pond	—	—	X	—	*Record of Decision Power Burst Facility and Auxiliary Reactor Area, Operable Unit 5-12* (DOE-ID 2000a) *Remedial Action Report for the Operable Unit 5-12 Remedial Action* (DOE-ID 2005a)	Post-ROD sampling demonstrated that mercury concentrations were below levels of concern; therefore, no remediation of the site was necessary.
	PBF-20	PBF SPERT-III small leach pond	X	—	—	—	*Record of Decision Power Burst Facility and Auxiliary Reactor Area, Operable Unit 5-12* (DOE-ID 2000a)	—
	PBF-22	PBF SPERT-IV leach pond (PBF-758)	—	X	—	X	*Record of Decision Power Burst Facility and Auxiliary Reactor Area, Operable Unit 5-12* (DOE-ID 2000a) "Five-Year Review of CERCLA Response Actions at the Idaho National Laboratory (Draft)"[b]	Institutional controls are required due to the presence of Cs-137. The 5-year review recommended discontinuation of the ICs pending Agency approval.
5-10	ARA-01	ARA-I chemical evaporation pond	—	—	X	—	*Record of Decision Power Burst Facility and Auxiliary Reactor Area, Operable Unit 5-12* (DOE-ID 2000a) *Remedial Action Report for the Operable Unit 5-12 Remedial Action* (DOE-ID 2005a)	The remedial action removed contamination to acceptable levels for free release.

Table 2. (continued).

OU	Site Code	Site Description	Determination				End State Document	Comments
			NA	NFA	RA	IC		
5-11	ARA-13	ARA-III sanitary sewer leach field and septic tank (ARA-740)	X	—	—	—	*Record of Decision Power Burst Facility and Auxiliary Reactor Area, Operable Unit 5-12* (DOE-ID 2000a) *Remedial Action Report for the Operable Unit 5-12 Remedial Action* (DOE-ID 2005a)	The waste contained in the septic tank and distribution box was removed during the WAG 5 remedial action as a best management practice, and portions of the structures were removed and disposed of in the Central Facilities Area landfill with the remaining tank and box structures abandoned in place in accordance with IDAPA standards.
5-12	ARA-23	ARA-II radiological contaminated surface soils around ARA-I and ARA-II	—	—	X	X	*Record of Decision Power Burst Facility and Auxiliary Reactor Area, Operable Unit 5-12* (DOE-ID 2000a) *Remedial Action Report for the Operable Unit 5-12 Remedial Action* (DOE-ID 2005a)	Institutional controls are required due to the presence of Cs-137.
	ARA-24	ARA-III windblown soil	—	X	—	X	*Record of Decision Power Burst Facility and Auxiliary Reactor Area, Operable Unit 5-12* (DOE-ID 2000a)	Institutional controls are required due to the presence of a contaminated pipeline embedded in concrete 20 ft below grade.
	ARA-25	ARA-I soils beneath the ARA-626 hot cells	—	—	X	X	*Record of Decision Power Burst Facility and Auxiliary Reactor Area, Operable Unit 5-12* (DOE-ID 2000a) *Remedial Action Report for the Operable Unit 5-12 Remedial Action* (DOE-ID 2005a)	Institutional controls are required due to residual contamination in the bedrock less than 10 ft below grade.

Table 2. (continued).

OU	Site Code	Site Description	Determination				End State Document	Comments
			NA	NFA	RA	IC		
	PBF-29	PBF reactor area abandoned fuel oil tank	X	—	—	—	*Record of Decision Power Burst Facility and Auxiliary Reactor Area, Operable Unit 5-12* (DOE-ID 2000a)	The tank has been removed.
	PBF-30	PBF reactor area abandoned septic system	X	—	—	—	*Record of Decision Power Burst Facility and Auxiliary Reactor Area, Operable Unit 5-12* (DOE-ID 2000a)	The tank has been abandoned in place.
	PBF-31	SPERT-II Fuel II tank (PBF-742)	X	—	—	—	*Record of Decision Power Burst Facility and Auxiliary Reactor Area, Operable Unit 5-12* (DOE-ID 2000a)	The tank has been removed.
	PBF-32	PBF control area fuel oil tank (PBF-742)	X	—	—	—	*Record of Decision Power Burst Facility and Auxiliary Reactor Area, Operable Unit 5-12* (DOE-ID 2000a)	The tank has been removed.
	PBF-37	Contaminated soils beneath the PER-751 pump house floor slab and foundation	—	—	X	—	*Record of Decision Power Burst Facility and Auxiliary Reactor Area, Operable Unit 5-12* (DOE-ID 2000a) *Remedial Action Report for the Operable Unit 5-12 Remedial Action* (DOE-ID 2005a)	This site was identified after the completion of the ROD. Upon Agency concurrence, it was remediated in accordance with the OU 5-12 ROD due to the presence of Cs-137. Residual contaminant concentrations allow for free release.

Table 2. (continued).

OU	Site Code	Site Description	Determination				End State Document	Comments
			NA	NFA	RA	IC		
5-13	PBF-08	PBF reactor area corrosive waste disposal sump brine tank	—	—	X	—	*Power Burst Facility Record of Decision: Power Burst Facility Corrosive Waste Sump and Evaporation Pond, Operable Unit 5-13, Waste Area Group 5* (DOE-ID 1992a) *Explanation of Significant Difference Power Burst Facility Corrosive Waste Sump and Evaporation Pond Record of Decision at the Idaho National Engineering Laboratory* (DOE-ID 1994a) *Explanation of Significant Difference Power Burst Facility Corrosive Waste Sump and Evaporation Pond Record of Decision at the Idaho National Engineering Laboratory* (DOE-ID 1994b) *Final Remedial Action Report Power Burst Facility (PBF) -08 Corrosive Waste Sump and PBF-10 Evaporation Pond Interim Action, Operable Unit 5-13* (Parsons 1995)	The sump is no longer in use.
	PBF-10	PBF reactor area evaporation pond (PBF-733)	—	—	X	X	*Power Burst Facility Record of Decision: Power Burst Facility Corrosive Waste Sump and Evaporation Pond, Operable Unit 5-13, Waste Area Group 5* (DOE-ID 1992a)	Institutional controls are required due to the presence of Cs-137.

Table 2. (continued).

OU	Site Code	Site Description	Determination				End State Document	Comments
			NA	NFA	RA	IC		
							Explanation of Significant Difference Power Burst Facility Corrosive Waste Sump and Evaporation Pond Record of Decision at the Idaho National Engineering Laboratory (DOE-ID 1994a)	
							Explanation of Significant Difference Power Burst Facility Corrosive Waste Sump and Evaporation Pond Record of Decision at the Idaho National Engineering Laboratory (DOE-ID 1994b)	
							Final Remedial Action Report Power Burst Facility (PBF) -08 Corrosive Waste Sump and PBF-10 Evaporation Pond Interim Action, Operable Unit 5-13 (Parsons 1995)	
10-08	PBF-33	Abandoned debris trench	—	—	—	—	—	Final action remains to be determined under OU 10-08. The Track 1 recommendation is to remove the asbestos-containing materials.

Table 2. (continued).

OU	Site Code	Site Description	Determination					End State Document	Comments
			NA	NFA	RA	IC			
	PBF-34	Abandoned debris located near the Mixed Waste Storage Facility	—	—	—	—	—		Final action remains to be determined under OU 10-08. The Track 1 recommendation is to remove the asbestos-containing material.
	PBF-35	Abandoned power and control cables between buildings at the PBF Complex	—	—	—	—	—		Final action remains to be determined under OU 10-08. The Track 1 recommendation is no action.

a. DOE-ID, 2005, "Five-Year Review of CERCLA Response Actions at the Idaho National Laboratory (Draft)," DOE/NE-ID-11201, Rev. 0, Draft, U.S. Department of Energy Idaho Operations Office, June 2005.

ARA = Auxiliary Reactor Area
CERCLA = Comprehensive Environmental Response, Compensation, and Liability Act
D&D = decontamination and dismantlement
DOE-ID = U.S. Department of Energy Idaho Operations Office
IC = institutional control
IDAPA = Idaho Administrative Procedures Act
INEL = Idaho National Engineering Laboratory
NA = no action
NFA = no further action
OU = operable unit
PBF = Power Burst Facility
RA = remedial action
ROD = Record of Decision
SL-1 = Stationary Low-Power Reactor No. 1
SPERT = Special Power Excursion Reactor Test
WAG = waste area group

Table 3. Site code crosswalk to operable unit.

Site Code	Operable Unit	Site Code	Operable Unit
ARA-01	5-10	PBF-01	None
ARA-02	5-07	PBF-02	None
ARA-03	5-07	PBF-03	None
ARA-04	None	PBF-04	5-04
ARA-05	5-01	PBF-05	5-08
ARA-06	5-05	PBF-06	5-03
ARA-07	None	PBF-07	5-03
ARA-08	None	PBF-08	5-13
ARA-09	None	PBF-09	None
ARA-10	None	PBF-10	5-13
ARA-11	None	PBF-11	5-08
ARA-12	5-06	PBF-12	5-02
ARA-13	5-11	PBF-13	5-03
ARA-14	None	PBF-14	5-04
ARA-15	5-01	PBF-15	5-08
ARA-16	5-01	PBF-16	5-09
ARA-17	5-01	PBF-17	None
ARA-18	5-01	PBF-18	Not assigned
ARA-19	5-01	PBF-19	5-04
ARA-20	5-06	PBF-20	5-09
ARA-21	None	PBF-21	5-02
ARA-22	None	PBF-22	5-09
ARA-23	5-12	PBF-23	Not assigned
ARA-24	5-12	PBF-24	5-03
ARA-25	5-12	PBF-25	None
		PBF-26	5-02
		PBF-27	None
		PBF-28	5-03
		PBF-29	5-12
		PBF-30	5-12
		PBF-31	5-12
		PBF-32	5-12
		PBF-33	10-08
		PBF-34	10-08
		PBF-35	10-08
		PBF-36	Not assigned
		PBF-37	5-12

ARA = Auxiliary Reactor Area
PBF = Power Burst Facility

3. CLOSE-OUT EVALUATION

The following sections discuss the achievement of the ROD requirements, groundwater monitoring requirements, achievement of milestones established for the WAG 5 CERCLA activities, closure of any outstanding compliance issues, and the retention of records associated with the WAG 5 CERCLA activities.

3.1 Achievement of Requirements

The four RODs that were prepared to evaluate and address the various WAG 5 sites are included in Tables 1 and 2, indicating where the achievement of requirements is documented. The *Record of Decision Auxiliary Reactor Area-I Chemical Evaporation Pond, Operable Unit 5-10* (DOE-ID 1992b) provided a No Further Action recommendation for the ARA-I chemical evaporation pond. The risk posed by the residual contaminants at the site was reassessed during the *Record of Decision Power Burst Facility and Auxiliary Reactor Area, Operable Unit 5-12* (DOE-ID 2000a) resulting in remediation of the pond.

The *Power Burst Facility Record of Decision: Power Burst Facility Corrosive Waste Sump and Evaporation Pond, Operable Unit 5-13, Waste Area Group 5* (DOE-ID 1992a) addressed remediation of the PBF evaporation pond's contaminated sediment and removal of the contaminated sludge and sediment from the corrosive waste sump. Two ESDs were prepared against the ROD, thereby revising the handling and disposition of the pond sediments and the sump sludge. The first ESD—*Explanation of Significant Difference Power Burst Facility Corrosive Waste Sump and Evaporation Pond Record of Decision at the Idaho National Engineering Laboratory* (DOE-ID 1994a)—provided that empty waste containers would be used for disposal of the sediments if sufficient partially filled containers requiring only minimal further characterization of the contents were not available. Furthermore, the soil would not require grouting as stipulated in the ROD (DOE-ID 1992a), because they were not Resource Conservation and Recovery Act (RCRA) characteristic for chromium as originally believed. The second ESD—*Explanation of Significant Difference Power Burst Facility Corrosive Waste Sump and Evaporation Pond Record of Decision at the Idaho National Engineering Laboratory* (DOE-ID 1994b)—allowed for the removal and temporary storage of the sludge from the sump to await treatment and disposal at an approved facility. The sump sludge has subsequently been transferred from the Mixed Waste Storage Facility to an approved treatment, storage, and disposal facility for final disposition.

The *Record of Decision Stationary Low-Power Reactor-1 and Boiling Water Reactor Experiment-I Burial Grounds (Operable Units 5-05 and 6-01), and 10 No Action Sites (Operable Units 5-01, 5-03, 5-04, and 5-11)* (INEL 1996) outlined the selected remedy for the SL-1 reactor burial ground requiring the construction of an engineered barrier over the two trenches that comprised the burial ground, implementation of land-use controls to inhibit intrusion into the buried waste, and performance of routine inspections and maintenance (as required) to ensure that the remedy remains protective of human health and the environment. Inspections of the engineered barrier are performed annually as are radiological surveys to assess whether there have been changes to the background levels experienced at the site.

The *Record of Decision Power Burst Facility and Auxiliary Reactor Area, Operable Unit 5-12* (DOE-ID 2000a)—commonly referred to as the OU 5-12 ROD or comprehensive ROD—consolidated all previous information, data, evaluations, recommendations, and actions taken regarding all sites identified up to that time as WAG 5. The OU 5-12 ROD also provided for the remediation of seven contaminated sites, implementation and maintenance of institutional controls at 15 sites (six of which were to be remediated), disposition of stored and investigation-derived waste, and implementation of groundwater monitoring at WAG 5. One ESD—*Explanation of Significant Differences for the Record of Decision for the Power Burst Facility and Auxiliary Reactor Area Operable Unit 5-12* (DOE-ID 2005b)—modified the

prescribed treatment for sludge removed from the ARA-16 radionuclide tank to allow for transfer of the sludge from the high-integrity container in which it has been stored since being pumped from the tank into the system being fabricated for the treatment of the V-Tanks waste at Test Area North at the INL. The waste has been transferred into the V-Tanks treatment system with the remaining activity being the disposal of the empty container.

3.2 Groundwater Monitoring

As stated in the preceding section, groundwater monitoring was implemented at WAG 5 in accordance with the OU 5-12 ROD (DOE-ID 2000a). The primary reasons for monitoring were to assess the continued exceedances of the U.S. Environmental Protection Agency (EPA) -defined maximum contaminant level for lead by samples collected from the various monitoring wells at WAG 5. It was believed, and has subsequently been proven, that the elevated lead concentrations in groundwater samples collected from the WAG 5 monitoring network were attributed to galvanic corrosion occurring in the wells because of the use of galvanized riser pipes in the well construction rather than stainless steel. The galvanized steel components have been replaced by stainless steel with a corresponding decrease in the lead concentrations noted. As such, it has been recommended in the INL Sitewide 5-year review that is currently undergoing Agency review to discontinue all groundwater monitoring at WAG 5 with the exception of that required to support the PER-722 tank investigation discussed below.

In 2004, the Idaho Department of Environmental Quality (DEQ) issued a "Schedule and Criteria for Petroleum Release from PBF Heating Oil Tank PER-722 Reported in 2002" (Frederick 2004). In response, a piezometer well was installed in the vicinity of the tank and the *Groundwater Monitoring Plan for the PER-722 Underground Storage Tank Diesel Fuel Release* (DOE-ID 2004f) provided for quarterly monitoring of the new well for a period of 3 years to ensure that the release did not adversely impact the Snake River Plain Aquifer. To date, monitoring results for benzene, toluene, ethylbenzene, and xylenes along with polynuclear aromatic hydrocarbons have supported the INL's position based upon modeling results that the release would have a negligible impact on the aquifer. Monitoring of the piezometer well along with annual monitoring of two PBF monitoring wells in the vicinity and the Special Power Excursion Reactor Test (SPERT) -I production well located at PBF for volatile organic compounds will continue for the prescribed 3-year period after which the monitoring can be discontinued provided no evidence of an impact on the aquifer is found.

3.3 Achievement of Milestones

Table 4 presents the WAG 5 enforceable milestones and their associated completion dates. All identified FFA/CO-enforceable milestones related to WAG 5 have been completed.

Table 4. Waste Area Group 5 enforceable milestones.

FFA/CO Milestone	Completed Date	Enforceable Date
OU 5-10 Chemical Pond draft RI/FS submitted for review	December 12, 1991	December 31, 1991
OU 5-13 PBF evaporation pond draft interim action ROD submitted for review	June 22, 1992	June 30, 1992
OU 5-10 Chemical Pond draft RI/FS ROD submitted for review	October 29, 1992	October 31, 1992
OU 5-13 PBF Evaporation Pond draft interim action	July 28, 1993	July 31, 1993

Table 4. (continued).

FFA/CO Milestone	Completed Date	Enforceable Date
remedial design submitted for review		
OU 5-13 PBF Evaporation Pond draft remedial action work plan submitted for review	July 28, 1993	August 31, 1993
OU 5-13 PBF Evaporation Pond second draft remedial action report submitted for review	September 16, 1994	August 31, 1994
OU 5-05/6-01 SL-1 Burial Ground/BORAX-I Burial Site draft RD/RA work plan submitted for review	March 4, 1996	March 4, 1996
OU 5-12 draft comprehensive statement of work submitted for review	August 30, 1996	September 30, 1996
OU 5-12 draft comprehensive work plan submitted for review	January 31, 1997	February 28, 1997
OU 5-05/6-01 SL-1 Burial Ground/BORAX-I Burial Site draft remedial action report submitted for review	July 7, 1997	December 3, 1997
OU 5-12 draft comprehensive RI/FS submitted for review	October 6, 1998	October 31, 1998
OU 5-12 draft comprehensive ROD submitted for review	August 18, 1999	August 31, 1999
OU 5-12 draft Phase I RD/RA work plan submitted for review	May 9, 2000	August 11, 2000
OU 5-12 draft Phase II RD/RA work plan submitted for review	September 15, 2000	October 11, 2000
OU 5-12 draft remedial action report submitted for review	February 1, 2005	January 31, 2006
OU 5-12 draft operations and maintenance report submitted for review	May 5, 2005	February 28, 2006

BORAX-I = Boiling Water Reactor Experiment I
DEQ = [Idaho] Department of Environmental Quality
DOE-ID = U.S. Department of Energy Idaho Operations Office
EPA = U.S. Environmental Protection Agency
FFA/CO = Federal Facility Agreement and Consent Order
OU = operable unit
PBF = Power Burst Facility
RD/RA = remedial design/remedial action
RI/FS = remedial investigation/feasibility study
ROD = Record of Decision
SL-1 = Stationary Low-Power Reactor No. 1
WAG = waste area group

3.4 Closure of Compliance Issues

No outstanding compliance issues regarding RCRA or CERCLA regulations were identified during this review. All work activities have been completed in accordance with the applicable or relevant and appropriate requirements identified in the OU 5-12 ROD (DOE-ID 2000a).

Regulatory compliance issues related to the INL are entered, maintained, and tracked to resolution through self-disclosure logs maintained by the Environmental Affairs organization and transmitted monthly to the Agencies. A review of the log was completed and no outstanding compliance issues were identified for the WAG 5 sites. Any requests for access to the information contained in the INL Compliance Disclosure Log should be directed to the U.S. Department of Energy Idaho Operations Office (DOE-ID).

3.5 Retention of Records

In accordance with the requirements stated in the FFA/CO (DOE-ID 1991), the DOE-ID has established and currently maintains a database for the compilation and retention of Sitewide data generated with respect to all sites either considered for or accepted under the FFA/CO. These data are maintained and summarized in the Administrative Record, which is located at the INL Technical Library in Idaho Falls, Idaho. Upon request, copies of these electronically maintained data are available to stakeholders.

As part of the project close-out activity, an extensive review of the Administrative Record, the Information Repository, and the contractor-maintained EDMS was performed to ensure that all pertinent and relevant data and records have been included and are being maintained in accordance with the appropriate requirements. The results of this review revealed that all documents designated as either primary or secondary documents under the FFA/CO (DOE-ID 1991)—in which action determinations have been made—were included and may be accessed in the Administrative Record, the Information Repository, or EDMS. The review also determined that non-primary/secondary documents for those sites requiring further evaluation are included and are being maintained accordingly.

This activity also included verification of quality assurance/quality control records regarding the submittal of vendor data for materials and services used during the completion of the required remedial actions at the WAG 5 sites. These data submittals are included in EDMS and can be accessed at http://edms.inel.gov/icp_index.html.

4. SUMMARY OF THE FIVE-YEAR REVIEW

Review of the results of the groundwater monitoring activities and reports of the annual inspections conducted at WAG 5 shows that the implemented remedies are functioning as intended by the RODs and as modified by the ESDs. No changes in the physical conditions of the sites have occurred that would affect the protectiveness of any of the remedies. There have been no changes in the toxicity factors or risk factors for contaminants of concern that would draw into question the protectiveness of the remedies. Currently, a total of 13 hazardous sites within WAG 5 remain under institutional controls. No available information negates the protectiveness of the WAG 5 remedies.

4.1 Issues Identified in the Five-Year Review

No issues associated with the remedial actions that have been completed at WAG 5 were identified during the Fiscal Year (FY) 2005 5-year review.

4.2 Recommendations from the Five-Year Review

The institutional controls that are currently in place for 13 waste sites within WAG 5 appear to be functional and should be left in place for most of the sites until the radioactive residual contamination at these sites decays to levels below the free-release concentrations. The free-release concentration for Cs-137 (the primary radionuclide contaminant of concern) was established at 2.4 pCi/g, which is equivalent to a 1 E-4 risk for residential use. However, based on recent EPA-approved guidelines, the revised free-release concentration for Cs-137 is 5.97 pCi/g. This increase in the free-release concentration is due to a soil-shielding factor that was included in the latest risk models. Based on the revised criteria, it was recommended in the 5-year review that institutional controls be discontinued at the ARA-03 (ARA-I lead sheeting pad near ARA-627), PBF-22 (PBF SPERT-IV leach pond), and PBF-26 (PBF SPERT-IV lake) sites. Agency concurrence with this recommendation is pending.

A 4-year review of groundwater monitoring activities within WAG 5 showed that the existing groundwater flow and elevation underneath WAG 5 is not varying significantly and that the concentrations of organic, inorganic, and radionuclide contamination in the groundwater are substantially below EPA-defined regulatory levels. As a result of these findings, it has been recommended that all inorganic, radionuclide, and groundwater-level monitoring should be terminated for WAG 5 and that organic groundwater monitoring be continued at only the three monitoring wells (PBF-MON-A-001, PBF-MON-A-003, and SPERT-I) within the vicinity of the PER-722 diesel fuel release behind the PBF reactor building (PER-620). Furthermore, it has been recommended that the organic groundwater monitoring of these three wells also be terminated in 2006 if monitoring results continue to indicate organic contaminant concentrations in the groundwater are below regulatory concern. Again, Agency concurrence is pending.

5. TRANSITION OF RESPONSIBILITIES

The ICP review of all CERCLA requirements for WAG 5 has been completed and all requirements have been met. All WAG 5 enforceable milestones have been completed and no outstanding RCRA or CERCLA compliance issues affecting WAG 5 were identified during the completion of this Project Close-Out Report. The recent 5-year review for WAG 5 indicates that the selected remedies remain protective of human health and the environment.

5.1 Continuing Idaho Cleanup Project Activities

With the submission of the *Remedial Action Report for the Operable Unit 5-12 Remedial Action* (DOE-ID 2005a), WAG 5 entered into a monitoring and surveillance mode of operation. Remedial actions have been completed at WAG 5; however, monitoring, maintenance, inspection, and reporting requirements will continue until determined to no longer be necessary during a 5-year review with concurrence of the Agencies. Continuing ICP activities at WAG 5 include the following:

- Perform long-term monitoring and reporting associated with groundwater
- Perform long-term monitoring, surveillance, and reporting associated with institutional control sites
- Monitor and maintain the SL-1 burial ground's engineered barrier

- Perform 5-year reviews
- Perform further evaluation of sites identified post-OU 5-12 ROD (see Table 2) under OU 10-08
- Complete decontamination and dismantlement (D&D) of the PBF reactor building
- Disposition the remaining waste streams.

The ICP will retain responsibility for the activities detailed in the following subsections.

5.1.1 Groundwater Monitoring

The *Record of Decision Power Burst Facility and Auxiliary Reactor Area, Operable Unit 5-12* (DOE-ID 2000a) required groundwater monitoring to assess whether operational activities conducted at either ARA or PBF had adversely impacted the Snake River Plain Aquifer. As previously stated, it has been recommended in the recent 5-year review to reduce the scope of groundwater monitoring to continue assessment of the potential impact of the PER-722 diesel fuel release until March 2006 at which time monitoring may be discontinued in its entirety provided that sampling and analyses demonstrate that the release indeed did not have an adverse impact on the aquifer. The ICP will retain responsibility for monitoring the groundwater and for taking corrective actions, if required.

5.1.2 Operations and Maintenance

Operations and maintenance activities at WAG 5 are focused on the engineered barrier constructed over the two trenches that comprise the SL-1 burial ground. The ICP will retain responsibility for performing annual inspections of the engineered barrier, including radiological surveys of the perimeter of the barrier. To date, no maintenance of the barrier or fence surrounding the burial ground has been required; however, should the need arise, the ICP will be responsible for any necessary maintenance or modifications to ensure that the remedy remains protective of human health and the environment. The ICP will retain responsibility for all operations and maintenance reporting requirements associated with the SL-1 burial ground.

5.1.3 Institutional Controls

Subsequent to the *Record of Decision Power Burst Facility and Auxiliary Reactor Area, Operable Unit 5-12* (DOE-ID 2000a), 15 sites were identified as requiring institutional controls. Following the completion of the WAG 5 remediation activities and as documented in the *Remedial Action Report for the Operable Unit 5-12 Remedial Action* (DOE-ID 2005a), institutional controls were implemented at ARA-07 and ARA-08 because of residual radiological contamination. In addition, as documented in the Remedial Action Report (DOE-ID 2005a), institutional controls were no longer required at the ARA-01, ARA-02, ARA-12, and ARA-16 sites. As previously stated, the FY 2005 Sitewide 5-year review has recommended that institutional controls be discontinued at ARA-03, PBF-22, and PBF-26. The remaining sites requiring institutional controls until discontinued based upon the results of a future 5-year review with concurrence of the Agencies include the following:

- ARA-06: ARA-II SL-1 burial ground
- ARA-07: ARA-II seepage pit to the east (ARA-720A)
- ARA-08: ARA-II seepage pit to the west (ARA-720B)
- ARA-23: ARA-II radiologically contaminated soils around ARA-I and ARA-II
- ARA-24: ARA-III windblown soil

- ARA-25: ARA-I soils beneath the ARA-626 hot cells
- PBF-10: PBF reactor area evaporation pond (PBF-733)
- PBF-12: PBF SPERT-I leach pond
- PBF-13: PBF reactor area rubble pit
- PBF-21: PBF SPERT-III large leach pond.

5.1.4 Five-Year Reviews

In accordance with the requirements of 40 *Code of Federal Regulations* (CFR) 300, "National Oil and Hazardous Substances Pollution Contingency Plan," for sites where contamination is left in place above risk-based concentrations, a review of the selected remedy is required to be conducted by the lead federal agency on no less than a 5-year cycle or until it is determined by the Agencies to be unnecessary. The purpose of the reviews is to evaluate the implemented remedies and determine whether they are functioning as intended and remain protective of human health and the environment. The reviews will address the 10 sites listed in Section 5.1.3, "Institutional Controls." Based on the results of the 5-year reviews, institutional controls may be removed or added, and waste sites may be removed from further review with approval of the Agencies.

5.1.5 New Sites

Subsequent to the issuance of the OU 5-12 ROD (DOE-ID 2000a) in February 2000, five new sites have been identified at WAG 5. The PER-722 site, originally identified as PBF-36, was addressed under the Risk-Based Corrective Action Guidance Document for Petroleum Releases under purview of the DEQ and was subsequently not included under the FFA/CO (DOE-ID 1991). A second site, PBF-37, was remediated in accordance with the OU 5-12 ROD (DOE-ID 2000a) with concurrence of the Agencies. Initial assessment and evaluations of the remaining three sites (PBF-33, PBF-34, and PBF-35) have been completed, and recommendations have been made regarding future actions with concurrence of the Agencies pending. These three sites will be evaluated under the OU 10-08 RI/FS to be completed in FY 2009. Any newly identified sites that are found after the publication of this report have the option to be evaluated under the OU 10-08 RI/FS and subsequent ROD. Protective measures have been implemented at the three sites to restrict access and to ensure that no man-made disturbance of the sites occurs. The ICP will retain responsibility for the sites, which are identified in Table 2.

5.1.6 Power Burst Facility Reactor Building (PER-620)

To date, D&D activities pertaining to the PBF reactor complex have been completed in accordance with the requirements delineated in the *Engineering Evaluation/Cost Analysis for Phase 1 of the Decommissioning for the Power Burst Facility Reactor Building (PER-620)* (DOE-ID 2004g). The Phase I activities have been completed under a time-critical removal action and have included the following:

- Removing and dispositioning low-level radioactive liquids from PER-620
- Removing and dispositioning liquids in the PER-706 evaporation tank
- Removing and dispositioning most of the shielding lead and all cadmium sheeting
- Removing and dispositioning the inpile tube

- Installing shielding over the reactor following removal of the reactor vessel water
- Removing and disposing of some radioactive hot spots to reduce worker exposures during removal of shielding lead
- Isolating utility lines and other piping to the PBF reactor building and weatherproofing the building
- Managing and disposing of other waste generated incidental to accomplishing this scope as CERCLA waste.

A future non-time-critical removal action will be completed by 2012 under the purview of ICP and will address the remaining structure at PER-620 and the reactor vessel.

5.1.7 Responsibility for Sites Currently Listed in the Federal Facility Agreement and Consent Order

The ICP will retain responsibility for all inactive sites currently listed in the FFA/CO (DOE-ID 1991). If circumstances indicate that a site was not evaluated correctly, the ICP will retain responsibility for any necessary actions required to mitigate the situation. However, if ongoing activities at a facility have caused new contamination at a previously determined inactive site, this new contamination would quality as a new source or new site, and the INL will be responsible for funding any investigation and action required to mitigate the situation.

5.1.8 Waste Disposition

Four waste streams resulting from WAG 5 CERCLA activities remain to be addressed. The first of these waste streams is the high-integrity container that, until recently, held the sludge removed from the ARA-16 radionuclide tank during the remediation of that site. During the week of August 1st, the sludge was pumped from the high-integrity container into the system fabricated for treatment of the V-Tanks' waste. The container was subsequently rinsed and is currently in storage at Test Area North awaiting approval to be shipped to the Idaho CERCLA Disposal Facility (ICDF) for final disposition. A second waste stream consists of 19 208-L (55-gal) drums of stabilized liquid currently stored at the Staging and Storage Annex located at the Idaho Nuclear Technology and Engineering Center awaiting disposal in the ICDF. Five 0.6 × 1.2 × 1.8-m (2 × 4 × 6-ft) metal boxes containing piping encapsulated in grout comprise the third waste stream with the fourth waste stream being a 1.4 × 1.4 × 4.0-m (4.5 × 4.5 × 13-ft) concrete monolith containing the ARA-16 radionuclide tank itself. Like the 19 drums of stabilized liquid, these two waste streams are located at the Staging and Storage Annex awaiting disposal at the ICDF. The ICP retains responsibility for the proper disposal of these four waste streams.

5.2 Future Idaho National Laboratory Responsibilities

The INL will be responsible for any newly identified sites resulting from releases from active sites identified at either ARA or PBF. In addition, the INL will be responsible for identifying any new contaminant sources from active sites and the corrective actions to mitigate them. At the discretion of the INL, the new sites or release sites may be addressed either under the FFA/CO (DOE-ID 1991) if they qualify as a solid waste management unit, as a RCRA corrective action, or as an emergency response. The INL will retain the option of addressing these sites either internally, through the resources held by the ICP, or by outside subcontractors.

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